Having thus described the invention, it is claimed:

1. A method for controlling an internal combustion engine, comprising:

measuring an ionization signal of at least one combustion event in at least one cylinder of the internal combustion engine during initial engine operation;

determining at least one index of combustion quality based upon the ionization signal; and,

compensating at least one engine control parameter during the initial engine operation based upon the at least one index of combustion quality.

2. The method of claim 1, wherein the initial engine operation comprises a time from start of engine crank until at least one intake valve exceeds a predetermined temperature.

3. The method of claim 2, wherein the predetermined temperature comprises a temperature sufficient to atomize a substantial portion of fuel injected into the internal combustion engine near the at least one cylinder.

4. The method of claim 1, wherein the initial engine operation comprises a time from start of engine crank until commencement of closed loop air/fuel ratio control.

5. The method of claim 1, wherein compensating at least one engine control parameter during initial engine operation based upon the at least one index of combustion quality comprises adjusting pulsewidth of at least one fuel injector based upon the at least one index of combustion quality.

6. The method of claim 1, wherein determining the at least one index of combustion quality based upon the ionization signal comprises determining a plurality of indexes of combustion quality, wherein each index of the plurality of indexes of combustion quality corresponds to one of the cylinders of the internal combustion engine.

7. The method of claim 6, wherein compensating at least one engine control parameter during initial engine operation based upon the at least one index of combustion quality comprises adjusting fuel injector pulsewidth of the one of the cylinders based upon the at least one index of the plurality of indexes of combustion quality that corresponds to the one of the cylinders.

8. The method of claim 1, wherein compensating at least one engine control parameter during the initial engine operation based upon the at least one index of combustion quality comprises controlling at least one parasitic engine load.

9. The method of claim 1, wherein compensating at least one engine control parameter during the initial engine operation based upon the at least one index of combustion quality comprises adjusting spark ignition timing to the at least one cylinder of the internal combustion engine.

10. The method of claim 1, wherein determining the at least one index of combustion quality based upon the ionization signal comprises calculating a time-integral of at least a portion of each measured ionization signal of at least one combustion event in at least one cylinder of the internal combustion engine during the initial engine operation.

11. A method for compensating for a variation in fuel quality during initial operation of an internal combustion engine, comprising:

measuring an ionization signal of at least one combustion event in at least one cylinder of the internal combustion engine during initial engine operation;

determining at least one index of combustion quality based upon the ionization signal; and,

compensating fuel delivery to the engine during the initial engine operation based upon the at least one index of combustion quality.

12. A method for improving combustion stability on an internal combustion engine during initial engine operation, comprising:

measuring an ionization signal of at least one combustion event in at least one cylinder of the internal combustion engine during the initial engine operation;

determining at least one index of combustion quality based upon the ionization signal; and,

compensating at least one engine control parameter during the initial engine operation based upon the at least one index of combustion quality.

13. A system to control an internal combustion engine during initial operation, comprising:

an ion sense device operable to measure an ionization signal in at least one cylinder of the internal combustion engine during initial operation; and,

a controller, signally connected to the ion sense device, and, operable to control at least one engine control parameter of the internal combustion engine;

wherein the controller is operable to:

determine at least one index of combustion quality for at least one cylinder based upon the measured ionization signal from the ion sense device, and,

compensate the at least one engine control parameter of the internal combustion engine based upon the at least one index of combustion quality.

14. The system of claim 13, wherein the initial engine operation comprises the period of time from start of engine crank until at least one intake valve exceeds a predetermined temperature.

15. The system of claim 13, wherein the at least one output device of the internal combustion engine comprises a fuel injector.

16. The system of claim 13, wherein the internal combustion engine comprises a spark ignition engine.

17. The system of claim 13, wherein the internal combustion engine comprises a compression ignition engine.

18. The system of claim 17, wherein the ion sense device comprises a glow plug operable to sense ionization current in at least one cylinder of the internal combustion engine.

19. The system of claim 13, wherein the at least one output device of the engine comprises a spark ignition and timing system.